

WEST INDIAN COCCINELLIDAE V (COLEOPTERA): A REVIEW OF COCCIDULINI AND ADDITIONS TO *PSOROLYMA* SICARD

ROBERT D. GORDON

Systematic Entomology Laboratory, PSI, Agricultural Research Service, USDA,
% U.S. National Museum of Natural History, Washington, D.C. 20560

Abstract.—The West Indian taxa of Coccidulini are reviewed, and a key to the genera is given. Two new species of *Psorolyma* Sicard, *Psorolyma doyneni*, n. sp., and *Psorolyma baorucensis*, n. sp., are described, a revised key to species is presented, and pertinent morphological structures are illustrated.

The tribe Coccidulini is represented in the New World by very few genera, some of which have not previously been formally assigned to a subfamily or tribe. *Psorolyma* Sicard, *Botynella* Weise, *Geodimmockius* Chapin, and *Bura* Mulsant are here considered to be members of the Coccidulini. They are restricted to the West Indies and are the only native West Indian cocciduline genera known. In addition to these native genera, the ubiquitous *Rhyzobius lophanthae* (Blaisdell) is perhaps present although no West Indian specimens have been examined. This species was introduced from Australia into California more than 100 years ago and has since been introduced into many parts of the world. It is known to occur in North America (Gordon, 1985), Bermuda (Gordon and Hilburn, 1990), and South America (Gordon, in press) and therefore included in the following key. The South American taxa of the subfamily Coccidulinae are treated and the subfamily formally described by Gordon (in press).

KEY TO WEST INDIAN GENERA OF COCCIDULINI

1. Dorsum densely pubescent with mixture of erect and decumbent hairs; postcoxal line complete *Rhyzobius* Stephens
Dorsum feebly pubescent with scattered, erect hairs; postcoxal line incomplete 2
- 2(1). Genal projection of clypeus broadly extended onto inner 1/3 of eye (Fig. 14); clypeal apex truncate, not transparent; antenna not reaching posterior pronotal angle; body nearly round; dorsum entirely black with brassy sheen; Hispaniola *Bura* Mulsant
Clypeus without lateral projection; clypeal apex emarginate, or if truncate, then apex transparent; antenna reaching posterior pronotal angle or beyond; body elongate, or with outline of pronotum and elytron strongly discontinuous; dorsum variable in color; Hispaniola and elsewhere 3
- 3(2). Body color very dark (except *Psorolyma sicardi* pale with black spots); pronotum, elytron without reflexed, transparent margins; not known from Cuba (Fig. 17) . . .
. *Psorolyma* Sicard
Body color pale, often with dark spots on elytron; pronotum and elytron with reflexed, transparent margins; known only from Cuba 4
- 4(3). Outline of pronotum, elytron strongly discontinuous; eye very convex, "bugeyed"; clypeal apex transparent; lateral margins of pronotum and elytron extremely strongly reflexed (Fig. 15) *Geodimmockius* Chapin

Outline of pronotum, elytron nearly continuous; eye somewhat convex; clypeal apex not transparent; lateral margins of pronotum and elytron moderately reflexed (Fig.

16) *Botynella* Weise

TAXA OF NATIVE WEST INDIAN COCCIDULINI

Bura Mulsant

Bura Mulsant, 1850:374, 419. Type species: *Bura cuprea* Mulsant, by monotypy.

Bura is a monobasic genus known only from Hispaniola and doubtfully from Cuba. It differs significantly from all other West Indian coccidulines in having a short, wide labium as in Figure 2 (Fig. 1 illustrates a characteristic cocciduline labium) and a strong lateral projection expanded onto the eye (Fig. 14). In addition, the apical maxillary palpal segment (not illustrated) is only slightly securiform, resembling that of some genera of Sticholotidini. The long, slender, 10-segmented antenna with 3-segmented fusiform club (Fig. 3), protuberant prosternal projection (Fig. 6), absence of tibial spurs, tarsal claw toothed at base, and incomplete postcoxal line parallel to base of sternum, and 6-segmented abdomen are characters shared with all other West Indian genera of Coccidulini, therefore *Bura* is considered correctly placed in this tribe.

Dimmock (1906) mentioned a single specimen from Cuba that he tentatively assigned to *Bura*. That specimen may not have been a species of *Bura* and the presence of the genus on Cuba is considered extremely doubtful.

Botynella Weise

Botynella Weise, 1891:286. Type species: *Botynella quinquepunctata* Weise, by subsequent designation of Korschefsky, 1931.

Botynella quadripunctata Weise, 1891:287. Distribution: Cuba.

Botynella quinquepunctata Weise, 1891:287. Distribution: Cuba.

Structures of this genus are similar to those of *Bura*, except for the elongate labium (Fig. 1); antenna with a broader, more robust basal segment (Fig. 5); prosternal process narrower, shorter, less protuberant (Fig. 7). Figures 8 and 9 illustrate the similarity in clypeal structure between *Botynella* and *Psorolyma*.

Geodimmockius Chapin

Geodimmockius Chapin, 1930:489. Type species: *Geodimmockius explanatus* Chapin, by monotypy.

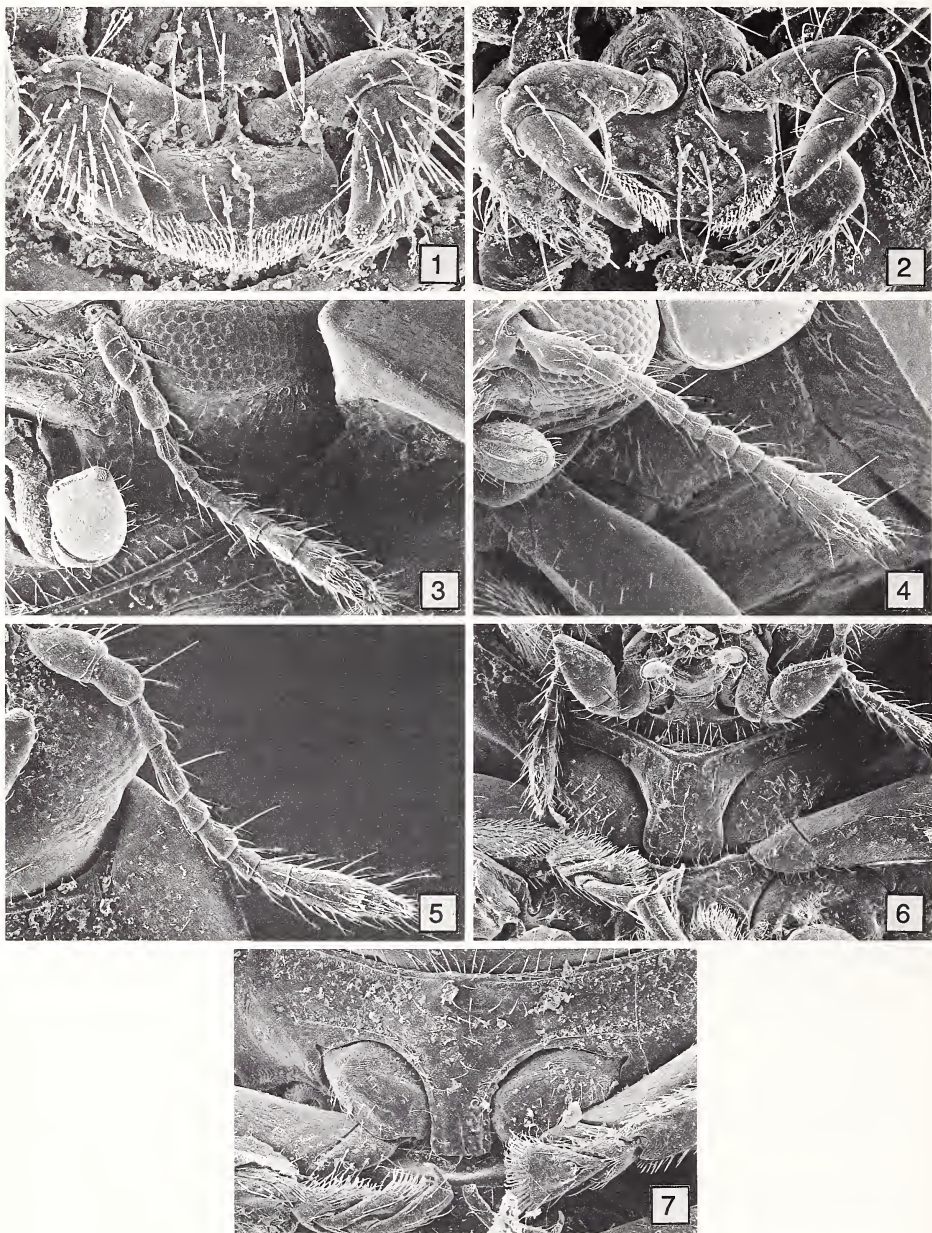
A monotypic genus known only from Cuba, *Geodimmockius* is an extremely distinctive taxa readily recognized by characters given in the key.

Psorolyma Sicard

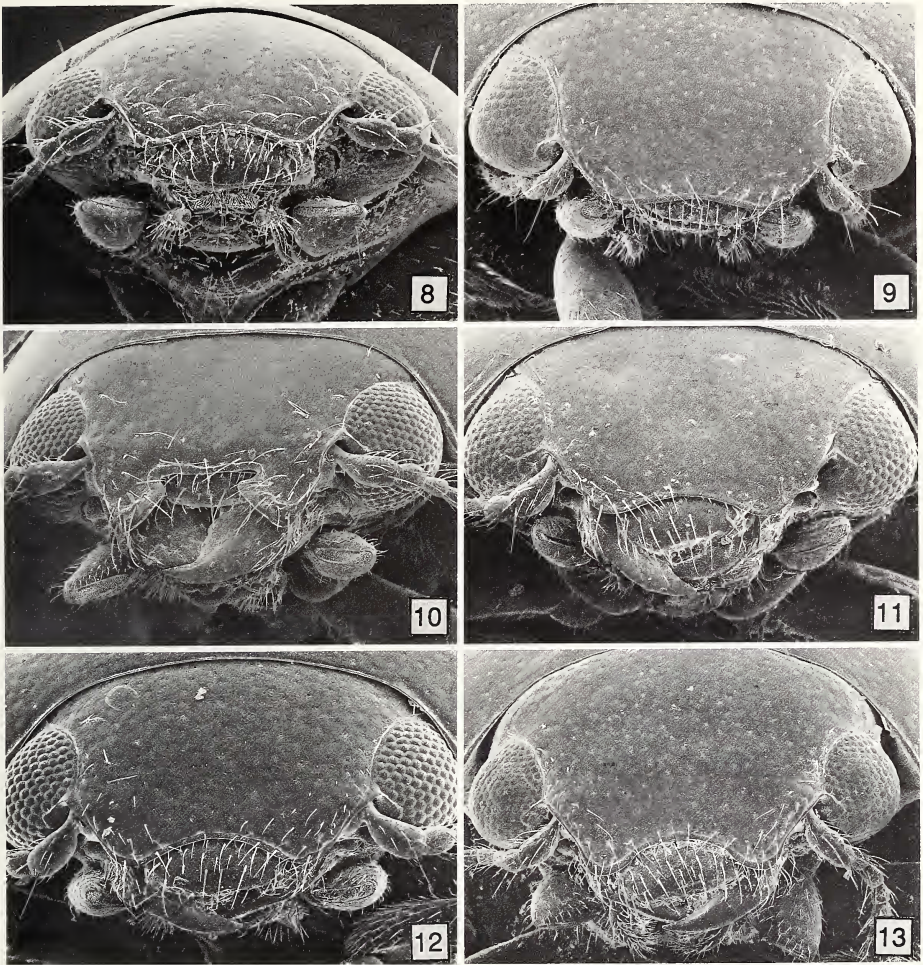
Psorolyma Sicard, 1922:358. Type species: *Psorolyma maxillosa* Sicard, by monotypy.

Psorolyma maxillosa Sicard, 1922:360. Distribution: Puerto Rico.

Psorolyma sicardi Gordon, 1974:229. Distribution: Jamaica.



Figs. 1-7. *Botynella quinquepunctata*, labium. 2. *Bura cuprea*, labium. 3. *Bura cuprea*, antenna. 4. *Psorolyma maxillosa*, antenna. 5. *Botynella quinquepunctata*, antenna. 6. *Bura cuprea*, prosternal process. 7. *Botynella quinquepunctata*, prosternal process.



Figs. 8–13. Head views. 8. *Botynella quinquepunctata*. 9. *Psorolyma cyanella*. 10. *Psorolyma maxillosa* (male). 11. *Psorolyma doyeni*. 12. *Psorolyma sicardi*. 13. *Psorolyma baorucensis*.

Psorolyma cyanella Gordon, 1974:230. Distribution: Hispaniola.

Psorolyma doyeni, new species. Distribution: Hispaniola.

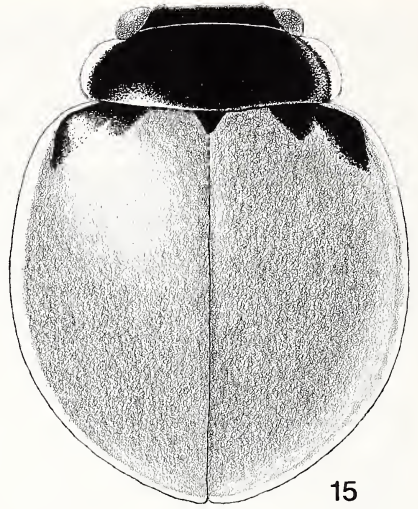
Psorolyma baorucensis, new species. Distribution: Hispaniola.

This genus is typically cocciduline in structures such as the antenna (Fig. 4), but is atypical in having male genitalia with asymmetrical basal lobes as illustrated in Figures 18 and 22. Each known species has differently formed clypeal apices as in Figures 9–13. Except for the genitalia of *P. maxillosa*, both male and female genitalia are very uniform in appearance, but the siphonal apex is characteristic for each species.

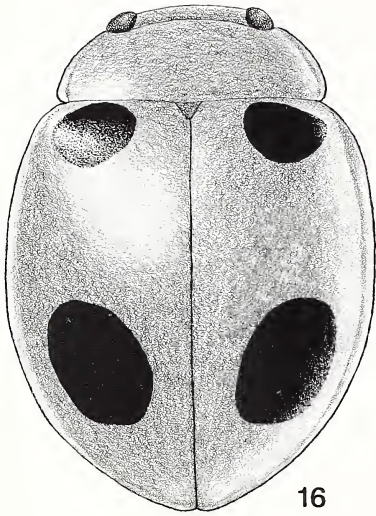
The first paper in this West Indian series (Gordon, 1974) was a revision of *Pso-*



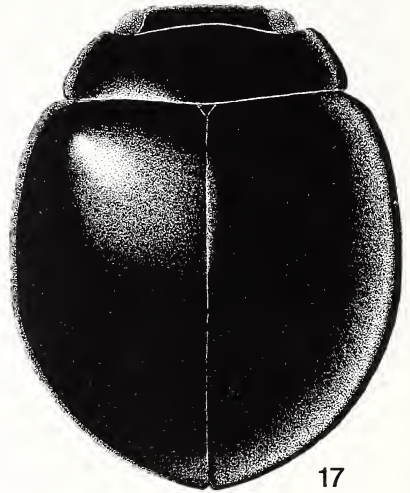
14



15



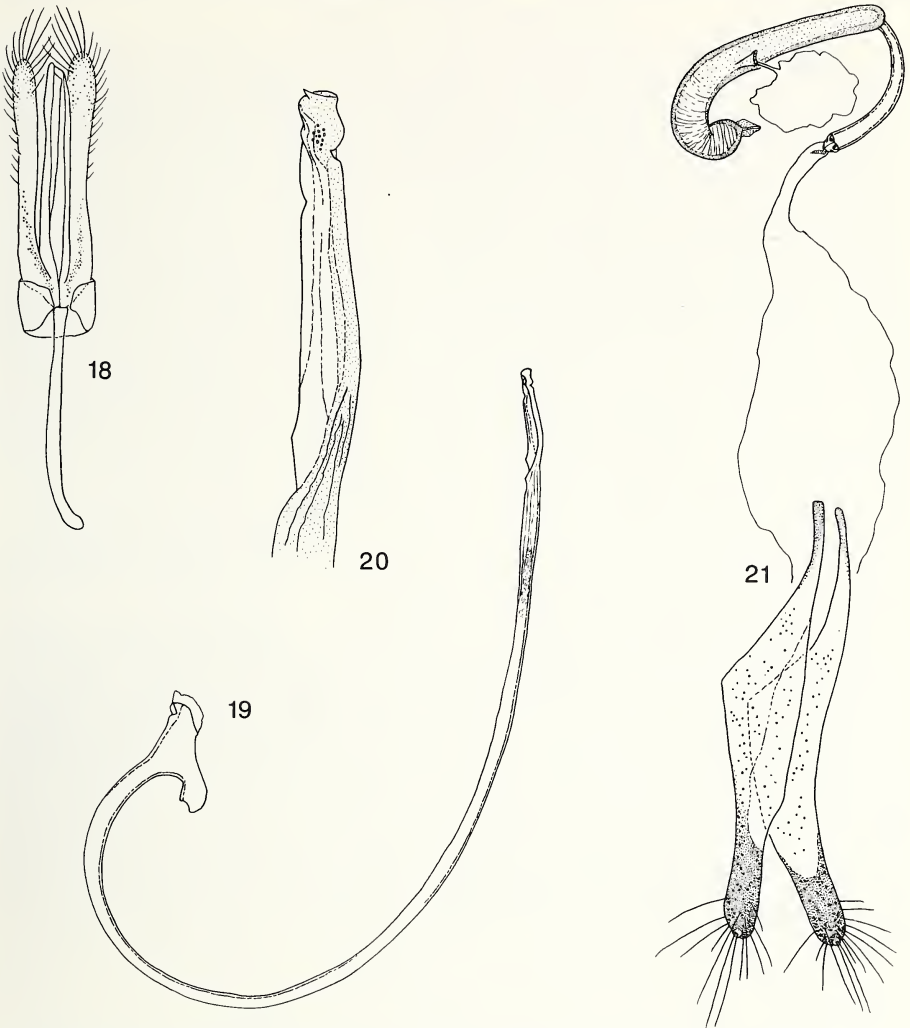
16



17

Figs. 14–17. 14. *Bura cuprea*, head. 15–17. Habitus views. 15. *Geodimmockius explanatus*. 16. *Botynella quadripunctata*. 17. *Psorolyma cyanella*.

rolyma in which the genus was redescribed and two species were added. Two additional species were recently discovered in the collection of the University of California, Berkeley; therefore the existing key is modified, and these species are described. See Gordon (1974) for a generic description and illustrations of previously described species.



Figs. 18–21. *Psorolyma doyeri*. 18–20. Male genitalia. 21. Female genitalia.

Host information for members of *Psorolyma* consists of a single bit of data associated with specimens of *Psorolyma maxillosa* Sicard, as follows; "On coffee feeding on *Toxoptera aurantiae*." *Toxoptera aurantiae* (Boyer de Fonscolombe) is a widespread aphid species, and it appears possible that *Psorolyma* species are, in general, aphid predators.

Type specimens are deposited in the collections of the California Academy of Sciences (CAS), San Francisco, California; M. Ivie (MI), Bozeman, Montana; University of California, Berkeley (UCB); and the National Museum of Natural History (USNM), Washington, D.C.

***Psorolyma doyeri*, new species**

Description: Holotype male, length 2.4 mm, width 1.7 mm. Form oval, somewhat elongate, widest at middle of elytra. Color black, head and pronotum with green sheen, elytron with strong purple sheen; mouthparts, basal 8 antennal segments, tibia, tarsus yellow; apical 3 antennal segments, trochanter, femur dark brown. Head with clypeal apex broadly, distinctly emarginate, anterior angle abrupt (Fig. 11); eyes separated by $2.8\times$ width of eye; surface smooth, polished, very finely punctured, punctures separated by a diameter or slightly more. Pronotum with surface slightly alutaceous, shiny; punctures equal in size to head punctures, separated by 1 to 2 times a diameter. Elytron with surface slightly alutaceous, shiny; punctures much coarser than on head, size slightly irregular, separated by a diameter or less. Epipleuron obliquely inclined. Apical margin of prosternum protruding slightly at middle. Postcoxal line on metasternum beginning in deep pit. Abdomen with postcoxal line on 1st sternum deeply impressed in basal $\frac{1}{4}$, not beginning in a pit; apex of 5th sternum truncate. Genitalia simple, basal lobe as long as paramere, apex slightly asymmetrical (Fig. 18); siphio slender, unmodified (Figs. 19, 20).

Allotype: Length 2.5 mm, width 1.7 mm. Similar to male except apex of 5th sternum rounded. Spermathecal capsule elongate, slender, cornu abruptly bent (Fig. 21).

Variation: Length 2.0 to 2.5 mm, width 1.6 to 1.7 mm. Head, pronotum sometimes with purplish reflections mixed with green sheen.

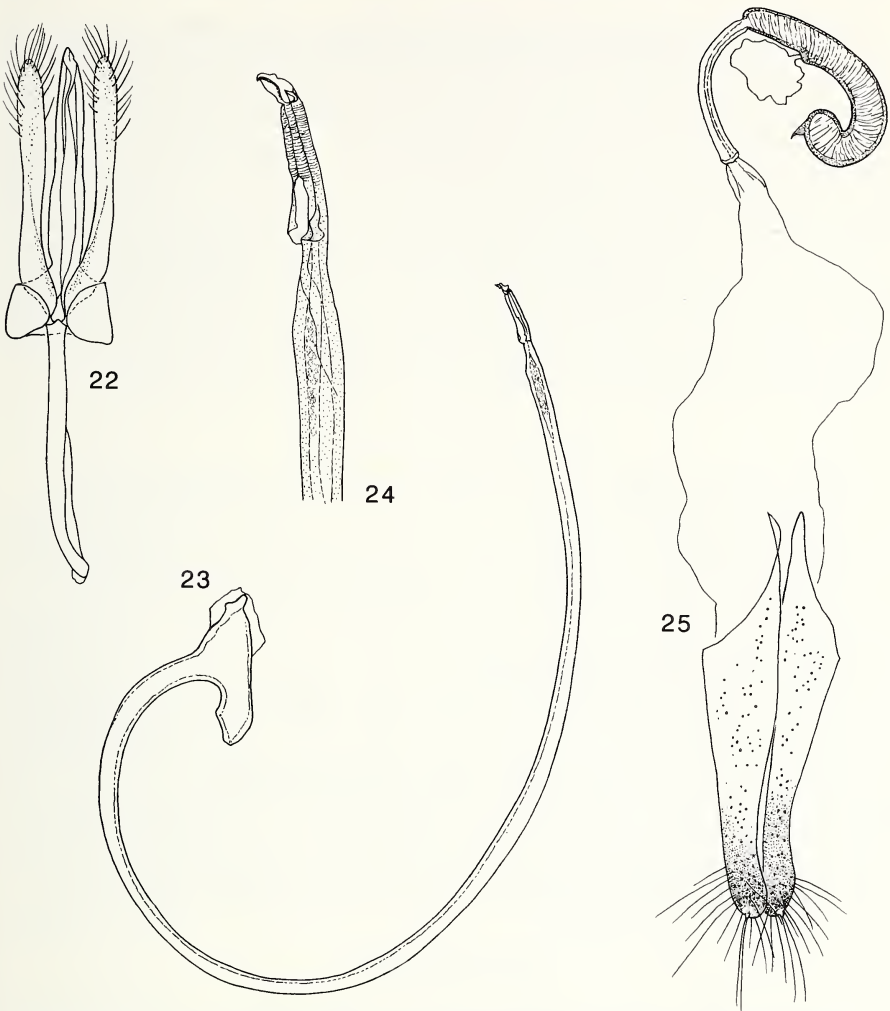
Type material: Holotype: Rep. Dom: La Vega Prov. 24 km S Jarabacoa, 4,000', ex. vegetation, I-2-1987, J. Doyen (CAS). Allotype, 4 paratypes, same data as holotype; 1 paratype, Haiti, 1925 WA Hoffmann, Camp Perrin, July 25; 1 paratype, Dominican Rep, Los Hidalgos, 4-5-VI-1969, Flint & Gomez. (CAS) (UCB) (USNM).

Remarks. In addition to characters used in the key to species, *P. doyeri* can usually be recognized by the distinct green sheen on the head and pronotum contrasted with the purple sheen of the elytra. The pronotal punctures of both *P. doyeri* and *P. baorucensis* are much finer and less dense than in *P. cyanella*, the only described species with which they could be confused. Gordon (1974) stated that he had seen 3 specimens of *P. cyanella* that had an atypical clypeal apex. These specimens were not included in the type series of *P. cyanella* and they now prove to be examples of *P. doyeri*.

The species is named for John Doyen, collector of the type series and an eminent coleopterist.

***Psorolyma baorucensis*, new species**

Description: Holotype male, length 2.0 mm, width 1.8 mm. Form oval, somewhat round, widest at middle of elytra. Color black, head and pronotum with purple sheen, elytron with strong green sheen; basal 8 antennal segments, mouthparts, tibia, tarsus yellow; apical 3 antennal segments light brown; ventral surface, femur dark brown. Head with clypeal apex deeply emarginate, anterior angle abrupt (Fig. 13); eyes separated by $2.4\times$ width of eye; surface slightly alutaceous, shiny, punctures fine, separated by about a diameter. Pronotum with surface polished, punctures equal in size to head punctures, separated by less than twice a diameter. Elytron with surface slightly alutaceous, shiny, punctures slightly coarser than on head, uniform in size, separated by twice a diameter. Epipleuron obliquely inclined. Apical margin



Figs. 22–25. *Psorolyma baorucensis*. 22–24. Male genitalia. 25. Female genitalia.

of prosternum protruding slightly at middle. Postcoxal line on metasternum beginning in deep pit. Abdomen with postcoxal line on 1st sternum deeply impressed in basal $\frac{1}{4}$, not beginning in pit; apex of 5th sternum truncate. Genitalia simple, basal lobe slightly longer than paramere, apex slightly asymmetrical (Fig. 22); siphus slender, unmodified (Figs. 23, 24).

Allotype: Length 2.2 mm, width 1.8 mm. Similar to male except clypeal apex not as deeply emarginate and apex of 5th sternum rounded. Spermathecal capsule elongate, slender, cornu abruptly bent (Fig. 25).

Variation: Length 1.75 to 2.3 mm, width 1.6 to 1.8 mm. Head, pronotum sometimes with greenish reflections mixed with purple sheen.

Type material: Holotype: Dominican Republic, Prov. Pedernales, 25 km N Cabo Rojo, 915 m, 09 SEP 1988, wet forest at light & night beating, M. Ivie, Philips & Johnson (USNM). Allotype: Rep. Dom: Pedernales Prov., Sierra Baoruca, 31 km N Cabo Rojo, 2,500', XII-29-1986, Doyen and Santiago, Broad leaf mesophyll association (Beating vegetation) (UCB). 6 paratypes, same data as allotype except additional date "XII-30-1986"; 1 paratype, same data as holotype; 1 paratype, Domin. Rep: Prov. Pedernales ca. 35 km N Cabo Rojo, 1,250 m, Las Abejas, 09 SEP 1988, beating veg., M. A. Ivie, T. K. Philips & K. A. Johnson. (MI) (UCB) (USNM).

Remarks: This species most nearly resembles *P. doyeri* but the head and pronotum usually have a purple sheen and the elytra have a green sheen, a reverse pattern from that of *P. doyeri*; see remarks under that species. In addition, the body form tends to be rounded in *P. baoruensis*, elongate in *P. doyeri*.

The species is named for the mountains where the type series originated.

KEY TO SPECIES OF *PSOROLYMA*

1. Dorsal punctation composed of intermixed coarse and fine punctures; coarse punctures sparse, irregularly spaced; male clypeal apex with strong, triangular projection on each side (Fig. 10); Puerto Rico *maxillosa* Sicard
Dorsal punctation fine, punctures uniform in size or with only slight size differential, not irregularly spaced; male clypeal apex not as described above; not known from Puerto Rico 2
- 2(1). Elytron yellow with 2 black spots; Jamaica *sicardi* Gordon
Elytron dark, concolorous; Hispaniola 3
- 3(2). Clypeal apex nearly truncate, anterior angle broadly rounded (Fig. 9); elytral punctures fine, uniform in size *cyanelia* Gordon
Clypeal apex distinctly emarginate, anterior angle abrupt; elytral punctation fine, uniform in size, or punctures slightly coarser, size slightly irregular 4
- 4(3). Clypeal apex strongly emarginate, anterior angle abrupt (Fig. 13); elytral punctation fine, uniform; elytron usually with green surface sheen *baoruensis*, new species
Clypeal apex moderately emarginate, anterior angle less abrupt (Fig. 11); elytral punctation slightly coarser than in *baoruensis*, punctures slightly irregular in size; elytron usually with purple sheen *doyeri*, new species

ACKNOWLEDGMENTS

I am indebted to John Doyen and Mike Ivie for loan of specimens, and to Kellie Marsh for preparing the illustrations. For manuscript review, I thank J. Chapin, Louisiana State University, Baton Rouge; H. Dozier, Pickens, South Carolina; and N. Vandenberg and E. Grissell, Systematic Entomology Laboratory, Washington, D.C.

LITERATURE CITED

- Chapin, E. A. 1930. New Coccinellidae from the West Indies. *J. Washington Acad. Sci.* 20: 488-495.
- Dimmock, G. W. 1906. Algunas Coccinellidae de Cuba. *Inf. An. Est. Centr. Agron.* 1904-1905 (1906), pp. 287-392.
- Gordon, R. D. 1974. West Indian Coccinellidae I (Coleoptera): the genus *Psorolyma* Sicard. *Coleopterists Bull.* 28:228-232.
- Gordon, R. D. 1985. The Coccinellidae (Coleoptera) of America north of Mexico. *J. New York Ent. Soc.* 93:1-912.

- Gordon, R. D. In press. The Coccinellidae (Coleoptera) of South America, Fascicle 3: Revision of Coccidulinae Crotch, definition of Exoplectrinae Crotch and Azyinae Mulsant.
- Gordon, R. D. and D. J. Hilburn. 1990. The Coccinellidae (Coleoptera) of Bermuda. *J. New York Ent. Soc.* 98:265-309.
- Korschefsky, R. 1931. Pars 118, Coccinellidae I. Volume 16:1-224. *In: Coleopterorum Catalogus*. W. Junk, Berlin.
- Mulsant, M. E. 1850. Species de Coléoptères trimères sécuripalpes. *Ann. Sci. Phys. Nat. Lyon* 2:1-1104.
- Sicard, A. 1922. Descriptions de variétés, espèces et genres nouveaux appartenant à la famille des Coccinellides. *Ann. Mag. Nat. Hist.* (9)11:349-360.
- Weise, J. 1891. Neue Coccinelliden. *Dts. Ent. Zeit.* 4:282-288.

Received 1 June 1993; accepted 10 November 1993.